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AUTHOR Gilman, David Alan; Sousa-Roy, Pramila
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ABSTRACT

In order to evaluate the most effective delivery format for providing gifted/talented education, 247 elementary students in gifted programs in Evansville, Indiana, were divided into experimental students, who received instruction in self-contained classrooms of fellow gifted students, and control students, who received instruction in a pull-out program. Pre- and post-measures (about 8 months apart) on the Developing Cognitive Abilities Test (DCAT), writing samples, collage drawings, and post-test measures for the Indiana Statewide Test of Educational Progress (ISTEP) and the California Achievement Test (CAT) measured students' progress. Results from the DCAT and the collage drawing showed highly significant differences favoring the self-contained classroom format. Analysis of the writing samples showed some advantage for the control group. No substantive significant differences were found on the ISTEP or the CAT. Based on the number of significant differences that favored the self-contained classroom, it was concluded that this seemed to be the more effective format, but careful attention is recommended to determine how writing scores can be improved in that kind of format. It is also recommended that other delivery models, such as in-class enrichment, be considered. The major portion of the report is composed of statistical results from the assessment instruments and examples of student materials. Contains 10 references. (JDD)

A Formative Comparison of Two Formats (Self-Contained Class versus Enrichment Pull-out) for the Delivery of Gifted/Talented Instruction in the Evansville-Vanderburgh School Corporation

by
David Alan Gilman, Ph.D.
and
Pramila Sousa-Roy
Indiana State University

An Evaluation Prepared for the
Evansville-Vanderburgh School Corporation
of
Evansville, Indiana

Professional School Services
1315 School of Education
Indiana State University
Terre Haute, IN 47809

Contents

ABSTRACT

This study compared the effectiveness of the pull-out enrichment format and the self-contained classroom format in delivering instruction to gifted/talented students.

Two hundred four comparisons were made on Grades 2 - 5 students enrolled in four elementary schools in the HORIZONS Program of the Evansville-Vanderburgh School Corporation of Evansville, Indiana.

Pre- and post-measures on the Developing Cognitive Abilities Test (DCAT), writing samples, collage drawings, and posttest measures for the Indiana Statewide Test of Educational Progress (ISTEP) and the California Achievement Test (CAT) measured students' progress.

Results from the DCAT and the collage drawing showed highly significant differences favoring the self-contained classroom format. However, some measures used to evaluate the writing sample indicated that the pull-out group scored higher on the writing sample. No substantive significant differences were found on the ISTEP or the CAT.

A qualitative analysis used participant-observation to ascertain and examine advantages and disadvantages of both delivery formats.

This study compared the effectiveness of two formats for delivering enrichment instruction to gifted/talented students. The focus of the investigation was to determine whether a comprehensive curricula in self-contained classrooms for gifted and talented elementary students would be more effective than an enrichment pull-out in a program (otherwise known as mainstreaming, part-time, or partial scheduling).

The problem of how best to arrange gifted and talented students for instruction has been bothering educational administrators for some time. Shrum (1985) describes seven different formats for instructing the gifted. These are 1) regular classroom with cluster, 2) regular classrooms with pull-out, 3) special class, 4) special schools, 5) mentors, 6) acceleration, and 7) enrichment models. To these Wu (1984) adds, 8) special topics, 9) summer camps, 10) grade-skipping, 11) early graduation, and 12) telescoping grades. Each of these formats have been employed in an attempt to provide academically talented children with skill development for functioning beyond the classroom, reflection of student interests, and emphasis on conceptual themes rather than the acquisition of additional facts.

The basis for the determination of which method is more advantageous to the student has seldom been investigated by empirical research. Rather, some specialists in gifted and talented education (Zigmond, 1986) have claimed that the major factors involved in decisions about program formats and emphases should be 1) administrative practices, 2) teacher orientation, and 3) student characteristics. It is curious that all of these are input characteristics and that Zigmund does not list outcomes, such as student achievement, among her criteria.

Some studies have investigated the emotional and social effects of various forms of grouping. Carter (1986) evaluated gifted pull-out programs administered to gifted and non-gifted students, staff and parents. He concluded that the program had mostly a neutral effect on each of the groups, but that in some

cases the pull-out program had actually supported the social development of gifted students. These findings were not entirely supported by Zabel (1984) who also compared responses of 87 teachers of gifted students on the Maslach Burnout Inventory. Her findings suggest that rankings of teachers on the emotional exhaustion scale were affected by the delivery model and grade level of students. Self-contained classes and early adolescent levels were associated with the greatest emotional exhaustion.

Perhaps some of the reason for the lack of studies comparing the two delivery models (pull-out and self-contained classrooms) are explained by Gallagher (1984). He concludes that educational policymakers in many countries have been and continue to be faced with the difficulty of reconciling the principle of equal educational opportunity for all students with the provision of differential programming for gifted students, which is often perceived of as "elitist." This dilemma mirrors the socio-political conflict between emphasis on production versus emphasis on the equitable distribution of society's resources. Gallagher claims that educational programs for gifted students have vacillated between pull-out programs designed to nurture superior confidence and periodic bursts of equity during which heterogeneous grouping was preferred. Although Gallagher compares the effectiveness of heterogeneous grouping and pull-out programs, his study did not investigate self-contained classrooms per se.

Differences in the full- and part-time programs from three classrooms in each of two neighboring school districts were analyzed by Kramer (1987). Results indicated that outcomes are affected by the goal structures of the classrooms and that the instructional environment of a gifted classroom was a more important variable than the delivery format. Qualitative analysis led to the conclusion that cooperatively structured classrooms were more successful learning environments than non-cooperative ones.

Similar conclusions were reached by Wilde and Sillito (1986) who made

comparisons between gifted students in their local schools (pull-out) and a self-contained school solely for gifted students. This study was conducted by interviewing consultants, program specialists, school principals, itinerant teachers, school staff members, students, and parents of students in three school systems in Alberta, Canada. Their findings indicate that there are more important factors than the delivery format. Among these are the development of a statement of expectations regarding achievement in gifted programs, development of guidelines and procedures for effectively identifying the gifted and talented, development of guidelines for the identifying and training teachers of the gifted, providing additional counseling services for gifted children, and improving communications with parents of gifted.

However, positive results favoring the self-contained classroom were reported by Piburn and Enyeart (1985). This study compared the effect of gifted program delivery format on reasoning, probabilistic reasoning, and the ability to isolate and control variables, propositional logic, and hypothesis testing tasks. Comparisons were made between 217 students in elementary school science gifted and talented classrooms and 91 students in mainstreamed classrooms. Results showed that the gifted and talented sample was accelerated over the comparison group by two or three grade levels, suggesting that the self-contained program was more appropriate for students if they are to become truly gifted. However, the question is also raised concerning whether standardized achievement tests can adequately measure the effects of pull-out enrichment programs.

One variation of the pull-out/self contained comparison was conducted by Bigelow (1983). She investigated comparable achievement of 75 academically gifted students in self-contained 5 day per week classes with 148 gifted students in a one day per week pull-out program. The Ross Test of Higher Cognitive Processes measured higher cognitive skills in a pre- and post-test design. The California Achievement Test also measured growth in basic skills. In addition,

teachers and administrators were interviewed, and parents and students completed questionnaires about the programs. Results revealed that students in the five-day per week program made sigrificantly greater gains in higher cognitive processes than did students in the one-day per week program. Further, in basic skills, they achieved as well as, or better than, students in the one day program. All gifted students performed significantly better than did a control group of regular students on the Ross Test of Higher Cognitive Processes.

The controversy surrounding the best alternative for program delivery continues. If the self-contained classroom is a more effective program delivery format than the pull-out method, then the mean scores of students and the gains of students in self-contained classrooms should be higher than the means and gains of students in the pull-out programs.

STATEMENT OF THE PROBLEM

General Statement of the Problem. What is the most effective delivery format for providing gifted/talented education.

Specific Statement of the Problem. Do gifted/talented students achieve more through a pull out enrichment program or through a comprehensive curricula in a self-contained classroom?

Hypotheses. Students in the HORIZONS program of the Evansville-Vanderburgh School Corporation will achieve raw scores, will achieve higher scores adjusted for differences in ability, and will demonstrate greater pre to posttest gains. Measures used to quantify achievement are the Developing Test of Cognitive Abilities (DCAT), the Indiana Statewide Test of Educational Progress (ISTEP), the California Achievement Test (CAT), writing samples, and collage drawings.

METHOD

Subjects. Subjects were 247 elementary students enrolled in the HORIZONS

Programs in the Evansville-Vanderburgh School Corporation in Evansville, Indiana during the 1987-88 school year. These students attended classes in Grades 2-5 in four elementary schools that were selected to serve as the sample. The four elementary schools were Scott and Cynthia Heights, which are located in rural areas of Vanderburgh County, and Hebron and Highland, which are located inside the city of Evansville.

Subjects were selected to participate in the HORIZONS Program based on the following criteria: Otis Lennon School Abilities Test, (45 percent); Renzulli Teacher Checklist, (5 percent); Parent Questionnaire, (5 percent); Torrence Test of Creativity, (10 percent); Language, Reading, and Math Scores on the Comprehensive Tests of Basic Skills, (35 percent).

Groups. Subjects were divided into four groups for the purpose of data analysis. Specifically, the schools and their groups were as follows: Highland, urban control group; Scott, rural control group; Hebron, urban experimental group; and Cynthia Heights, rural experimental group. The control groups received the instruction for the HORIZONS project by leaving their classrooms for 35 minutes per day. The experimental groups received instruction in self-contained classrooms of fellow HORIZONS students.

Teachers of HORIZONS students had a variety of types and levels of training. Some had attended universities where they had received endorsements in gifted/talented education. Others admitted that they had received no formal training in teaching gifted or talented students. The instruction observed was also varied in that some teachers were instructing in a very traditional classroom while others were providing learning activities in a very creative way.

Measures. The following measures were administered to students as a pretest on or about October 5, 1988. The tests were also administered to students as a posttest on or about May 17, 1988. The measuring instruments and the kinds of scores that were generated by them are shown in Table 1.

TABLE I

Measures Used in the Study

Measures	Scores	Frequency of Testing
Developing Cognitive Abilities Test (DCAT) (Grades 2-5)	Cognitive Knowledge (Verbal & Quantitative) Comprehension (Verbal & Quantitative) Application (Verbal & Quantitative) Analysis (Verbal & Quantitative) Synthesis (Verbal & Quantitative Total Cognitive	Pre - Post
	Abilities Verbal Quantitative Spatial Total Abilities	Pre - Post
	Total by National Percentile	
Writing Sample (Grades 2-5)	Holistic (grammar, spelling, etc.) Maturity of ideas Creativity	Pre - Post
Drawing Collage (Grades 2-5)	Fluency, Flexibility, Originality, Elaboration Combined Score of Primary Traits	
Indiana Statewide Test of Educational Progress (ISTEP) (Grades 2-3)	Reading Language Mathematics Total Battery	Posttest Only
ISTEP Ability Test (Grades 2-3)	Sequences Analogies Memory Verbal Reasoning Total Scores Cognitive Skills Index (IQ)	Posttest Only
California Achievement Test (Grades 4-5)	Reading Language Mathematics Total Battery	Posttest Only

The Developing Cognitive Abilities Test

The Developing Cognitive Abilities Test (DCAT) is a measure of characteristics and ability that contribute to academic performance. Unlike traditional mental ability tests, the DCAT is based on the assumption that instruction can alter and improve those characteristics and abilities. The DCAT has been designed to measure two dimensions of aptitude. The first, and more traditional, dimension includes verbal, quantitative, and spatial abilities. The second dimension provides information based on five out of six cognitive classes of Bloom's taxonomy: 1) knowledge, 2) comprehension, 3) application, 4) analysis, and 5) synthesis. The assessment of the cognitive dimension separates the DCAT from other ability tests. The combination of these two dimensions -- the content area and the cognitive class -- offers the user a unique tool for the assessment of student ability. The specific information gained from the test can furnish a basis for modifying instruction to meet individual needs.

Six test levels provide for the continuous measurement of students in grades two through twelve. Level 2, which is paced by the examiner, contains 80 items arranged in nine subtests. Each of Levels 3 through 9/12 contains 80 items arranged in a single test. The suggested working time for each level is fifty minutes.

Subjects were tested out-of-level in that students completed tests designed for one grade level higher than the grade in which they were enrolled.

Indiana State Test of Educational Progress (ISTEP).

The school year in which this study was conducted coincided with the first year that the ISTEP was administered to all Grade 2 and Grade 3 students in Indiana. Adapted from the California Achievement Test, ISTEP combines items from that test with items constructed from objectives of the Indiana Department of Education. The cognitive test of ISTEP measures Reading, Language, Mathematics,

and the Total Battery. The abilities of ISTEP measures sequence, analogies, memory, verbal reasoning, and the total score can be converted into a "Cognitive Skills Index" which is similar to an intelligence quotient (IQ).

California Achievement Test (CAT).

The CAT is a widely used and established educational testing battery. Since the ISTEP is not used in Grades 4 and 5, the school corporation measures students' progress by the CAT. From this test, scores were derived for Reading, Language, Mathematics, and the Total Battery. Normal Curve Equivalent Scores were used also for the computations for this test.

Writing Sample.

At the beginning of the treatment and again during the final days of the school year, students completed a writing sample which consisted of them writing about a subject they were familiar with, but the subject was also one in which they could demonstrate creativity. An example of the instructions for one writing sample is contained in the paragraph below:

Instructions for Writing Sample

Time:	30 Minutes
Materials:	Writing paper, pencils
Teacher Tasks:	Print or write the following words on the chalkboard: happy, sad, disappointed, embarrassed, excited. Have students print their names and the date on their papers. Read the following to the students:
	Sometimes people are happy, sad, disappointed, embarrassed, or excited. Pick one of these feelings and write a story telling why you or someone else was happy, sad, disappointed, embarrassed, or excited. Make your story as interesting as possible

Papers were scored by three graders. Holistic scoring was used to assess the quality of the writing including grammar, spelling, etc. Primary traiting

was used to measure maturity of ideas and creativity. Each criterion was scored on a 0-4 scale by each of the graders. Results on each of the three criteria were averaged and these averages constituted the scores used for comparison in this study.

Examples of the writing sample are contained in Appendix VIII of this report.

Collage Drawing.

Students were required to draw on a paper a collage demonstrating as many of their own ideas as they could. Directions for this exercise are contained in the paragraphs below:

Instructions for Collage Drawing

Time: 30 Minutes
Materials: 12 x 8 Drawing Paper

Teacher Tasks: Have students write their name and date on the back of the drawing paper.

Since we have to see how many ideas students can come up with on their own, have students work without showing their ideas or papers. Do not give them any help or instructions. Read the following:

We want to know all about you. Think of all the things you could draw on this paper that would tell us about you. Make it look like a collage. Be as creative as possible.

Papers were scored by three elementary art specialists. Primary traiting was used to assess the quality of four creative thinking skills. These were: 1) fluency, 2) flexibility, 3) originality, and 4) elaboration. The combined rating of these four traits were scored on a scale from 0-4.

Procedure.

Students were instructed according to one of two formats. The pull-out group received regular heterogeneous class instruction but were in an enrichment class for 35 minutes per day. The self-contained classroom received full time instruction in a homogeneous classroom.

a) A qualitative study was performed by visiting the school. The evaluator

performed participant observation in that he assumed the role of a member of the class. Interviews with participating principals, teachers, and students were also conducted.

b) A scientific study was conducted by assessing students on a wide variety of instruments.

Method, Qualitative Study.

The project evaluator attended all classes in both treatment groups and assumed the role of a participant-observer. In addition, principals, teachers, students, and aides in the participating schools were interviewed. Results were synthesized and conclusions were inferred from that synthesis.

Method, Quantitative Study.

Pretests were administered during the first week of October, 1987. Posttests were administered on or about May 18, 1988, except for the ISTEP and the CAT which were administered on March 4, 1988.

Analysis, Quantitative Study.

Data obtained from the measures were analyzed by 1) analysis of variance to determine whether significant differences existed between means of the treatment group, 2) analysis of covariance to ascertain whether significant differences existed between the means of groups after scores had been adjusted for differences in student ability, and 3) a repeated measures analysis of variance to determine whether significant differences existed between the gains of what had occurred between the treatment groups during the time between the pretests and posttests.

It should be noted that it was not appropriate to use all three types of analyses for all three measures. For variables used as a covariate, it would have been impossible to analyze results on these measures with analysis of covariance. Since there were no pretests on either the ISTEP or the CAT, a repeated measures analysis of variance could not be performed.

Data was analyzed by means of the SPSS-X statistical package and the BIOMED statistical package on the Indiana State University CYBER Computer.

Results were tested for significance. Although the actual statistical level is reported, results of probability less than .05 was considered to be significant.

RESULTS

Qualitative Study.

Comments from interviews and findings from the participant observations were synthesized to form the paragraphs below:

Peer relationships. When children are segregated for any part of their schooling, there is a danger of elitism and jealousy. Children in the self-contained classrooms said that they had a feeling of estrangement from their neighbors and from former friends. In the pull-out program, children get to grow up with their neighbors. It can be argued that children who were leaders in heterogeneous classrooms will become followers in a class where other children are of equal or higher ability. However, peer tutoring is more a possibility outside the gifted/talented group only with the pull-out program.

Participating teachers. The teachers in the pull-out program must be willing to assume an unconventional schedule of classes. They must also be willing to teach some gifted classes while teaching other heterogeneous groups. Teaching gifted/talented students in a self-contained classroom requires an extraordinary person to possess the knowledge and skills that such a position requires. Sometimes teachers in self-contained classrooms expressed that they possessed a feeling of isolation, since they have so little in common with other school personnel.

Other teachers. Teachers who are not instructing HORIZONS classes indicated that they found it difficult to "give up" the students so that they could attend HORIZONS classes. Some teachers who were teaching HORIZONS classes

wondered how the regular classroom teachers succeeded in motivating their students when they had returned to regular classes after HORIZONS instruction.

Motivation. The enthusiasm of students was evident in the self-contained classroom. Students indicated that they felt busy and felt challenged every day in every class. Furthermore, the motivation students demonstrated in the classroom seemed to be self-directed. Students often were heard to exclaim, "I don't want to take a break!" The students in the pull-out program indicated that they enjoyed the enrichment activities but felt no challenge when they returned to their regular classrooms.

Curriculum. The self-contained classroom affords teachers with the opportunity to plan in-depth projects and assignments. It is difficult to plan a vertically articulated gifted/talented curricula with the pull-out format. The activities in a self-contained program are planned on a weekly instead of on a daily basis. This could lead to more comprehension for students in a self-contained classroom. Many students indicated that they enjoyed the flexible class scheduling of the self-contained classroom. As one student said, "In the regular classes, we used to waste a lot of time waiting for the others to finish. Now, if we get through with social studies, we can work more on math."

Administrative considerations. Some teachers expressed dissatisfaction with the pull-out program because a) when the HORIZONS teacher can not be at school, classes are cancelled because no subs are hired, and b) students are often taken from the HORIZONS class to participate in school activities. The latter factor creates a problem in two ways because students lose out on instruction during the time they missed and the interruptions disturb the other students in the class.

Parents. Parents of gifted children were said to have experienced the same kinds of elitism, jealousy, and estrangement that their children had experienced. The most difficult circumstance occurred when parents had found that their

children were being tested for HORIZONS, and then found that they had not been accepted. This situation causes problems for the school system, the school, and the participating teachers, and also creates ill will among parents. More of this kind of emotion was found to occur among parents of children in self-contained classrooms.

Summary. While there are many advantages and disadvantages of both delivery formats, the bottom line seems to be that the delivery format is most related to school size. It would be difficult in a small school to provide a self-contained classroom.

Quantitative Study.

Results for the study are listed in the table below. Significant differences among the 214 comparisons are listed as appropriate. The letter "E" indicates significant results in favor of the experimental group. The letter "C" indicates results in favor of the control group. Where the letter "n" occurs, no statistical test was appropriate. Dashes (-) indicate that differences for that comparison were not appropriate. Question marks indicate there is a significant difference between the groups, but the origin of the significance is unclear. Perhaps one or a few classes performed better than the others in these cases.

The statistical tests compared pre-test scores, both raw scores and scores adjusted for differences in ability; posttest scores, raw and adjusted for ability; pre- to posttest gains; and "Others" indicating some classes in one treatment group performed better than some classes in another treatment group.

A more detailed analysis of these differences appears in Section 4 (Appendix I) to Section 6 (Appendix III) and visual representations of selected comparisons appear in Section 7 (Appendix II) of this report.

TABLE II: Significant Differences Found in the Study

	Pre		Post		Pre-Post
DCAT	Raw	Adj.	Raw	Adj.	Gains
Verbal Knowledge	-	-	-	-	-
Verbal Comprehension	-	-	-	-	-
Verbal Applications	-	-	-	-	-
Verbal Analysis	-	-	-	-	-
Verbal Synthesis	-	E	E	E	-
Verbal Total	-	-	E	E	-
Quant. Knowledge	-	C	E	E	E
Quant. Comprehension	-	E	E	E	E
Quant. Analysis	C	C	E	E	E
Quant. Application	-	-	E	E	E
Quant. Synthesis	-	C	E	E	E
Quant. Total			E	E	E
Spatial Total	C	C	E	E	E
Total Scores	-	-	E	E	E
Total Percentiles			E	E	E
ISTEP					
Achievement					
Reading	n	n	-	-	-
Language	n	n	-	C	-
Math	n	n	-	E	-
Total Battery			-	-	-
Abilities					
Sequences	n	n	-	-	n
Analogies	n	n	-	-	n
Memory	n	n	-	-	n
Verbal Reasoning	n	n	-	-	n
Total	n	n	-	-	n
Cognitive Skills Index	n	n	-	-	n
California Achievement Test					
Reading	n	n	-	-	n
Language	n	n	-	-	n
Math	n	n	-	-	n
Total	n	n	-	-	n
Writing Samples					
Holistic Scoring	-	-	-	-	-
Maturity of Ideas	-	-	C	C	C
Creativity	E	E	C	C	C
Collage Drawings					
Composite Scores	-	-	-	-	E

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

QUALITATIVE STUDY

The analysis of data from participant-observation and interviews indicate some advantages and some disadvantages for each of the two methods. Each of these affects the education and emotional well being of students and teachers. More careful analysis will need to be considered before any conclusions can be made regarding the information and the merits of the two delivery formats.

Of the 204 comparisons made, 60 produced significant results. Of these, 49 favored the self-contained format, six favored the pull-out format, and the source of the other four could not be determined.

Almost all of the 15 subscale comparisons made on the DCAT indicated advantages for the self-contained classroom. There were few significant differences on the ISTEP or CAT.

The analysis of the writing samples showed some advantage for the control group. This is not completely surprising since participant-observation of the experimental group showed that they were not pleased with writing assignments.

The results of the comparison of means of the writing collage favored the experimental group.

Based on the number of significant differences that favor the self-contained classroom, it would seem that this is the more effective format. However, before a change in program of that magnitude is considered, careful attention must be given to how writing scores can be improved in that kind of format. Also, it is appropriate to consider some of the other delivery models such as in class enrichment models.

Finally, some of the difficulties encountered in this evaluation, such as selection procedures, informing unsuccessful applicants and their parents, avoiding elitism and jealousy, and preserving leadership roles of gifted students must be attended to.

Finally, further attempts must be made to determine the effectiveness of HORIZONS on a longitudinal basis. The dedication of program administrators to this task and the extent of effort on this study is a good first attempt toward that end.

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TABLE III: Summary Statistics for Verbal Knowledge (DCAT)

Means of Sample Groups

	1 Pretest			2 Posttest		
	County	City	Total	County	City	Total
Pullout	13.16	10.53	12.14	14.67	11.58	13.48
Self Contained	13.38	12.18	12.66	15.12	13.35	14.07
Total	13.26	11.65	12.45	14.89	12.78	13.82

	2	3	4	5
Pre Grades	14.99	17.28	7.96	8.98
Post Grades	17.84	18.63	8.98	9.06

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.347	.061	.728	.039
Posttest	.071	.813	.093	.010
Pretest (Adjusted)	.016	.252	.986	.081
Posttest (Adjusted)	.014	.751	.040	.019
Pre to Post Gains	.443	.050	.416	.252

The pre and post measures both favored the experimental groups. Some schools in the experimental group performed better than some classes in the control group.

TABLE IV: Summary Statistics for Verbal Comprehension (DCAT)

Means of Sample Groups

	Pretest[1]			Posttest[2]		
	County	City	Total	County	City	Total
Pullout	6.53	6.33	6.45	8.03	7.05	7.65
Self Contained	6.50	6.53	6.52	8.26	7.66	7.90
Total	6.52	6.46	6.49	8.14	7.46	7.80

	2	3	4	5
Pre Grades	7.00	7.73	5.07	6.00
Post Grades	8.96	9.47	6.04	6.48

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.862	.480	.747	.096
Posttest	.125	.858	.330	.005
Pretest (Adjusted)	.374	.874	.745	.215
Posttest (Adjusted)	.061	.879	.250	.006
Pre to Post Gains	.580	.599	.394	.151

No significant differences were observed in this measure.

TABLE V: Summary Statistics for Verbal Application (DCAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	4.09	5.83	5.07	5.34	6.05	5.62
Self Contained	4.36	5.20	4.86	5.74	5.68	5.46
Total	4.48	5.40	4.95	5.25	5.80	5.53

	2	3	4	5
Pre Grades	2.62	4.62	6.11	6.81
Post Grades	4.09	4.75	6.59	6.92

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.304	.223	.479	.048
Posttest	.590	.183	.616	.065
Pretest (Adjusted)	.874	.616	.149	.022
Posttest (Adjusted)	.944	.345	.440	.096
Pre to Post Gains	.701	.830	.623	.046

Only one slightly significant difference was observed. This probably occurred in grade 2 and favored the experimental group for one classroom in one school.

TABLE VI: Summary Statistics for Verbal Analysis (DCAT)

Means of Sample Groups

	1 Pretest			2 Posttest		
	County	City	Total	County	City	Total
Pullout	2.50	3.10	2.73	3.31	3.63	3.43
Self Contained	2.36	2.72	2.57	3.48	3.49	3.49
Total	2.43	2.84	4	3.39	3.54	3.57

	2	3	4	5
Pre Grades	1.87	2.83	2.73	3.23
Post Grades	3.14	3.72	3.34	3.69

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.171	.853	.365	.834
Posttest	.549	.338	.593	.012
Pretest (Adjusted)	.512	.336	.226	.838
Posttest (Adjusted)	.309	.169	.633	.013
Pre to Post Gains	.127	.701	.791	.492

There were no significant differences in the Verbal Analysis subtests except that one class in the experimental group scored higher on the post-test after the scores were corrected due to differences on the total DCAT pretest score.

TABLE VII: Summary Statistics for Verbal Synthesis (DCAT)

Means of Sample Groups

	1 Pretest			2 Posttest		
	County	City	Total	County	City	Total
Pullout	1.14	1.88	1.42	1.69	2.03	1.82
Self Contained	1.76	1.67	1.50	1.79	1.99	1.91
Total	1.70	1.74	1.47	1.74	2.00	1.87

	2	3	4	5
Pre Grades	.59	.88	2.13	2.42
Post Grades	1.22	1.30	2.46	2.61

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.222	.333	.251	.153
Posttest	.032	.737	.020	.279
Pretest (Adjusted)	.069	.140	.107	.117
Posttest (Adjusted)	.008	.446	.009	.366
Pre to Post Gains	.304	.504	.890	.470

On this brief measure, both pretest and posttest favored the experimental group.

TABLE VIII: Summary Statistics for Verbal Total (DCAT)

Means of Sample Groups

	1 Pretest			2 Posttest		
	County	City	Total	County	City	Total
Pullout	27.77	27.60	27.70	33.03	30.35	32.00
Self Contained	28.05	28.27	28.18	33.88	32.18	32.87
Total	27.90	29.06	27.98	33.43	31.59	32.50

	2	3	4	5
Pre Grades	27.20	33.22	24.00	27.37
Post Grades	35.32	37.85	27.41	28.79

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.718	.357	.850	.001
Posttest	.047	.933	.234	.001
Pretest (Adjusted)	.725	.781	.485	.359
Posttest (Adjusted)	.004	.538	.048	.001
Pre to Post Gains	.690	.341	.334	.317

On this measure, the pre- and posttest scores were significantly higher for the experimental group. One classroom in the experimental group performed significantly higher than other classrooms.

TABLE IX: Summary Statistics for Quantitative Knowledge (DCAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	4.19	5.00	4.50	7.25	6.73	7.05
Self Contained	4.24	5.06	4.73	8.79	7.51	8.03
Total	4.21	5.04	4.63	7.98	7.26	7.62

	2	3	4	5
Pre Grades	2.99	6.95	3.50	5.24
Post Grades	8.09	9.05	6.36	6.84

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grade	Treatment by Grades by Location
Pretest	.723	.277	.363	.830
Posttest	.0001	.004	.034	.000
Pretest (Adjusted)	.002	.678	.074	.483
Posttest (Adjusted)	.0001	.002	.036	.000
Pre to Post Gains	.0001	.006	.145	.0001

Results indicate significant gains on most dependent measures by the experimental group. Again, some classrooms, particularly those in the second grade, showed the most dramatic gains.

TABLE X: Summary Statistics for Quantitative Comprehension (DCAT) 25

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	2.58	2.75	2.64	3.88	4.15	3.98
Self Contained	2,28	2,85	2,58	5.19	4.36	4.70
Total	2.44	2.90	2.67	4.50	4.30	4.40

	2	3	4	5
Pre Grades	2.16	3.57	2.09	2.90
Post Grades	4.59	4.48	4.11	4.35

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.773	.023	.249	.742
Posttest	.000	.000	.023	.000
Pretest (Adjusted)	.062	.094	.379	.881
Posttest (Adjusted)	.008	.0001	.030	.0001
Pre to Post Gains	.0001	.0001	.722	.0011

Results indicated that the experimental group scored significantly higher on the posttest after results had been adjusted for differences in ability. Results also indicated a greater pre-post gain for the experimental group.

TABLE XI: Summary Statistics for Quantitative Applications (DCAT) 26

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	1.39	2.18	1.69	2.27	2.25	2.26
Self Contained	1.07	1.64	1.41	3.90	2.94	3.33
Total	1.24	1.81	1.53	3.04	2.72	2.88

	2	3	4	5
Pre Grades	.55	1.80	1.64	2.24
Post Grades	2.38	3.55	2.89	2.77

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.037	.546	.829	.014
Posttest	.000	.002	.005	.0001
Pretest (Adjusted)	.137	.873	.984	.002
Posttest (Adjusted)	.0001	.0001	.001	.0001
Pre to Post Gains	.0001	.008	.006	.001

Results indicate that the experimental group performed significantly higher than the control group on this brief measure. Results were particularly dramatic for grades 2 and 3.

TABLE XII: Summary Statistics for Quantitative Analysis (DCAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	.75	1.40	1.00	1.33	1.50	1.40
Self Contained	.62	.80	.73	1.82	1.82	2.05
Total	.69	.99	.84	1.83	1.72	1.78

	2	3	4	5
Pre Grades	.32	.87	.80	1.42
Post Grades	1.47	2.13	1.59	1.94

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.015	.411	.674	.952
Posttest	.0001	.018	.500	.579
Pretest (Adjusted)	.068	.119	.916	.768
Posttest (Adjusted)	.0001	.004	.550	.494
Pre to Post Gains	.0001	.196	.900	.877

In this brief test, the control group showed higher pretest scores, but the experimental group showed higher posttest scores and higher pre-post gains.

TABLE XIII: Summary Statistics for Quantitative Synthesis (DCAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	.28	.64	.42	.78	.64	.73
Self Contained	.34	.49	.43	1.09	.95	1.01
Total	.31	.54	.43	.93	.85	.89

	2	3	4	5
Pre Grades	.17	.45	.58	.55
Post Grades	.68	1.12	.95	.85

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.781	.373	.064	.177
Posttest	.003	.970	.215	.449
Pretest (Adjusted)	.087	.112	.062	.130
Posttest (Adjusted)	.074	.748	.207	.475
Pre to Post Gains	.017	.465	.953	.163

In this brief test, the gains favored the experimental group.

TABLE XIV: Summary Statistics for Quantitative Total (DCAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	9.16	12.03	10.24	15.50	15.31	15.43
Self Contained	8.60	11.04	10.05	21.34	17.72	19.19
Total	8.89	11.35	10.13	18.28	16.96	17.61

	2	3	4	5
Pre Grades	6.20	13.67	8.69	12.35
Post Grades	17.22	20.40	15.96	16.92

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.246	.245	.737	.874
Posttest	.000	.000	.16	.0001
Pretest (Adjusted)	.448	.938	.660	.304
Posttest (Adjusted)	.0001	.0001	.011	.0001
Pre to Post Gains	.0001	.0001	.104	.0001

All measures of significance favored the experimental treatment except that there were no differences in pretest scores. Some grade levels in some locations gained significantly more than others.

TABLE XV: Summary Statistics for Spatial Total (DCAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	8.72	10.23	9.30	11.41	12.43	11.80
Self Contained	6.26	7.13	6.78	12.53	12.65	12.60
Total	7.55	8.11	7.83	11.94	12.58	12.27

	2	3	4	5
Pre Grades	4.20	6.00	10.96	10.89
Post Grades	9.56	10.93	13.88	15.16

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.0001	.640	.368	.914
Posttest	.001	.629	.003	.790
Pretest (Adjusted)	.001	.375	.633	.975
Posttest (Adjusted)	.0001	.957	.006	.752
Pre to Post Gains	.0001	.814	.915	.900

For t measure, the experimental group scored significantly higher on all measures than the control group.

TABLE XVI : Summary Statistics for Total Score (DCAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	45.70	49.28	47.08	60.25	57.90	59.35
Self Contained	43.05	46.52	45.11	67.64	62.54	64.61
Total	44.44	47.40	45.94	63.76	61.06	62.39

	2	3	4	5
Pre Grades	37.36	52.68	43.75	50.94
Post Grades	62.09	69.33	57.18	60.73

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.074	.114	.408	.589
Posttest	.0001	.048	.0001	.0001
Pretest (Adjusted)	---	---	---	---
Posttest (Adjusted)	.0001	.002	.0001	.0001
Pre to Post Gains	.0001	.004	.090	.101

Results of this study indicated dramatic gains by the experimental group. The raw total scores on the DCAT, the adjusted total scores, and the pre to posttest gains all favor the experimental group. However, it should also be noted that some grade levels in the experimental group scored higher than other grade levels. Since the pretest was used as a covariate, the pretest score could not be adjusted.

TABLE XVII: Summary Statistics for Percentiles (DCAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	58.1	64.7	61.6	69.0	70.0	69.6
Self Contained	54.7	60.1	58.5	86.9	72.5	76.7
Total	56.6	61.8	59.9	77.0	71.6	73.6

	2	3	4	5
Pre Grades	46.8	66.1	55.6	63.3
Post Grades	77.8	85.7	76.3	73.7

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.098	.881	.322	.682
Posttest	.0001	.0001	.095	.126
Pretest (Adjusted)	.103	.110	.612	.927
Posttest (Adjusted)	.002	.297	.766	.270
Pre to Post Gains	.0001	.658	.022	.141

On this test, both posttest scores and pre-post gains favored the experimental group.

TABLE XVIII: Summary Statistics for Reading (ISTEP)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				84.4	79.4	83.3
Self Contained				80.3	85.1	82.8
Total				82.5	83.8	83.0
Pre Grades	2	3				
Post Grades	82.2	83.9				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.638	.012	.086	.567
Pretest (Adjusted)				
Posttest (Adjusted)	.671	.013	.857	.515
Pre to Post Gains				

Results indicate that some schools in the experimental group performed better than some schools in the control group.

TABLE XIX: Summary Statistics for Language (ISTEP)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				89.3	89.2	89.3
Self Contained				89.8	92.0	90.9
Total				89.5	91.4	90.3
Pre Grades	2	3				
Post Grades	89.8	91.4				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.506	.311	.037	.018
Pretest (Adjusted)				
Posttest (Adjusted)	.436	.333	.171	.009
Pre to Post Gains				

Results indicate no significant differences between experimental and control groups except that some classes in some schools gained more than other classes in other schools and some grades scored higher than others.

TABLE XX: Summary Statistics for Math (ISTEP)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				89.2	90.3	89.5
Self Contained				88.2	87.6	87.8
Total				88.7	88.2	88.5
Pre Grades	2	3				
Post Grades	90.3	86.3				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.380	.384	.791	.142
Pretest (Adjusted)				
Posttest (Adjusted)	.467	.293	.033	.046
Pre to Post Gains				

No differences were found favoring the experimental group except that some classrooms performed better than others but only after the scores had been adjusted.

TABLE XXI: Summary Statistics for Total Battery (ISTEP)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				92.7	92.7	92.7
Self Contained				90.9	93.0	92.0
Total				91.8	92.9	92.3
Pre Grades	2	3				
Post Grades	92.5	92.0				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.454	.486	.190	.055
Pretest (Adjusted)				
Posttest (Adjusted)	.527	.575	.733	.025
Pre to Post Gains				

No differences were found between the groups. However, a few classrooms gained at a higher level than others.

TABLE XXII: Summary Statistics for Sequence (ISTEP Ability)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				90.4	93.0	91.0
Self Contained				89.7	92.5	91.1
Total				90.0	92.6	91.1
Pre Grades	2	3				
Post Grades	88.7	93.7				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.660	.474	.729	.104
Pretest (Adjusted)				
Posttest (Adjusted)	.889	.534	.118	.250
Pre to Post Gains				

No differences were found favoring either group.

TABLE XXIII: Summary Statistics for Analogies (ISTEP Total (ISTEP Only) 38

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				89.3	94.0	90.4
Self Contained				90.4	90.7	90.6
Total				89.8	91.5	90.5
Pre Grades	2	3				
Post Grades	89.6	91.4				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.906	.374	.626	.856
Pretest (Adjusted)				
Posttest (Adjusted)	.826	.206	.318	.592
Pre to Post Gains				

There were no significant differences between the two groups.

TABLE XXIV: Summary Statistics for Memory (ISTEP)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				72.7	80.2	74.4
Self Contained				75.6	68.8	72.1
Total				74.1	71.3	7?.0
Pre Grades	2	3				
Post Grades	61.5	85.8				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.737	.369	.749	.244
Pretest (Adjusted)				
Posttest (Adjusted)	.884	.282	.347	.422
Pre to Post Gains				

There were no significant differences favoring either treatment group on the ISTEP Memory Test.

TABLE XXV: Summary Statistics for Verbal Reasoning (ISTEP Ability) 40

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				85.6	84.6	85.4
Self Contained				80.8	84.7	82.8
Total				83.3	84.7	83.5
	2	3				
Pre Grades						
Post Grades	78.3	90.0				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.230	.087	.376	.021
Pretest (Adjusted)				
Posttest (Adjusted)	.287	.083	.254	.002
Pre to Post Gains				

The only significant difference here is that a few classrooms performed higher than others.

TABLE XXVI: Summary Statistics for Total (ISTEP Ability)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				93.5	96.3	94.2
Self Contained				93.0	95.0	94.1
Total				93.3	95.3	94.1
Pre Grades	2	3				
Post Grades	92.5	95.5				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.570	.981	.763	.199
Pretest (Adjusted)				
Posttest (Adjusted)	.881	.615	.926	.607
Pre to Post Gains				

There were no significant differences in these measures. The groups were almost equal.

TABLE XXVII: Summary Statistics for Cognitive Skills Index (ISTEP) 42

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				128.9	133.2	129.8
Self Contained				128.1	130.7	129.4
Total				128.5	131.2	129.6
	2	3				
Pre Grades						
Post Grades	126.7	132.7				

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.415	.976	.499	.351
Pretest (Adjusted)				
Posttest (Adjusted)	.995	.930	.991	.980
Pre to Post Gains				

There were no differences in CSI between the two groups. The two were virtually equal in ability.

TABLE XXVIII: Summary Statistics for Language (CAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				86.2	83.1	84.5
Self Contained				85.1	82.1	83.0
Total				85.7	82.4	83.6
Pre Grades			4	5		
Post Grades			84.8	82.6		

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.513	.570	.219	.139
Pretest (Adjusted)				
Posttest (Adjusted)				
Pre to Post Gains				

There were no differences favoring either group.

TABLE XXIX: Summary Statistics for Reading (CAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				86.1	83.4	84.7
Self Contained				82.1	82.7	82.6
Total				84.4	83.0	83.5
Pre Grades			4	5		
Post Grades			84.5	82.6		

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.257	.567	.026	.956
Pretest (Adjusted)				
Posttest (Adjusted)				
Pre to Post Gains				

No significant differences were found favoring either group. However, some grades scored higher than other grades.

TABLE XXX: Summary Statistics for Math (CAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				88.6	89.1	88.9
Self Contained				92.2	85.9	87.7
Total				90.2	87.1	88.2
			4	5		
Pre Grades						
Post Grades			90.7	85.8		

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.483	.058	.833	.599
Pretest (Adjusted)				
Posttest (Adjusted)				
Pre to Post Gains				

There were no significant differences favoring either group.

TABLE XXXI: Summary Statistics for Total Battery (CAT)

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout				90.7	89.2	89.9
Self Contained				90.5	84.4	89.0
Total				90.6	88.7	89.4
			4	5		
Pre Grades						
Post Grades			91.9	87.1		

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest				
Posttest	.523	.555	.904	.777
Pretest (Adjusted)				
Posttest (Adjusted)				
Pre to Post Gains				

No differences were found in the total battery that favored either group.

TABLE XXXII: Summary Statistics for Writing Samples Holistics

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	2.4	1.9	2.2	2.6	2.7	**2.6**
Self Contained	2.0	2.5	2.3	2.5	2.7	**2.6**
Total	2.2	2.3	2.2	2.5	2.7	**2.6**

	2	3	4	5
Pre Grades	1.99	2.34	2.25	2.41
Post Grades	2.67	2.77	2.49	2.59

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.414	.0001	.400	.001
Posttest	.800	.196	.000	.067
Pretest (Adjusted)	.505	.0001	.242	.0001
Posttest (Adjusted)	.735	.167	.0001	.053
Pre to Post Gains	.837	.0001	.001	.130

The groups were almost identical in all measures. Some classrooms performed better on this measure.

TABLE XXXIII: Summary Statistics for Writing Sample (Maturity of IDEAS) 48

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	2.3	1.9	2.1	2.6	2.7	2.6
Self Contained	2.1	2.3	2.2	2.0	2.6	2.4
Total	2.2	2.1	2.2	2.4	2.7	2.5

	2	3	4	5
Pre Grades	2.12	2.41	2.01	2.10
Post Grades	2.67	2.72	2.38	2.28

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.101	.001	.057	.532
Posttest	.002	.166	.445	.099
Pretest (Adjusted)	.119	.0001	.061	.455
Posttest (Adjusted)	.001	.257	.330	.069
Pre to Post Gains	.002	.081	.062	.131

Pre-post gains and posttest scores favored the control group.

TABLE XXXIV: Summary Statistics for Writing Sample Creativity

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	2.3	1.7	2.0	2.6	2.6	2.6
Self Contained	2.1	2.2	2.2	1.7	2.6	2.4
Total	2.2	2.0	2.1	2.3	2.7	2.5

	2	3	4	5
Pre Grades	1.90	2.39	1.92	2.17
Post Grades	2.65	2.67	2.35	2.26

Analysis of Variance and Analysis of Covariance

Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.025	.000	.476	.021
Posttest	.019	.008	.661	.194
Pretest (Adjusted)	.029	.0001	.468	.016
Posttest (Adjusted)	.016	.010	.732	.220
Pre to Post Gains	.0001	.370	.017	.030

Although pretest measures favored the experimental group, the posttest and pre-to-post gains favored the control group.

TABLE XXXV: Summary Statistics for Collage Drawings.

Means of Sample Groups

	Pretest			Posttest		
	County	City	Total	County	City	Total
Pullout	2.3	2.1	2.2	2.8	2.9	2.7
Self Contained	2.4	2.1	2.2	2.8	2.9	2.9
Total	2.4	2.1	2.2	2.7	2.7	2.8

	2	3	4	5
Pre Grades	1.78	2.24	2.37	2.55
Post Grades	2.40	2.88	2.99	2.95

Analysis of Variance and Analysis of Covariance

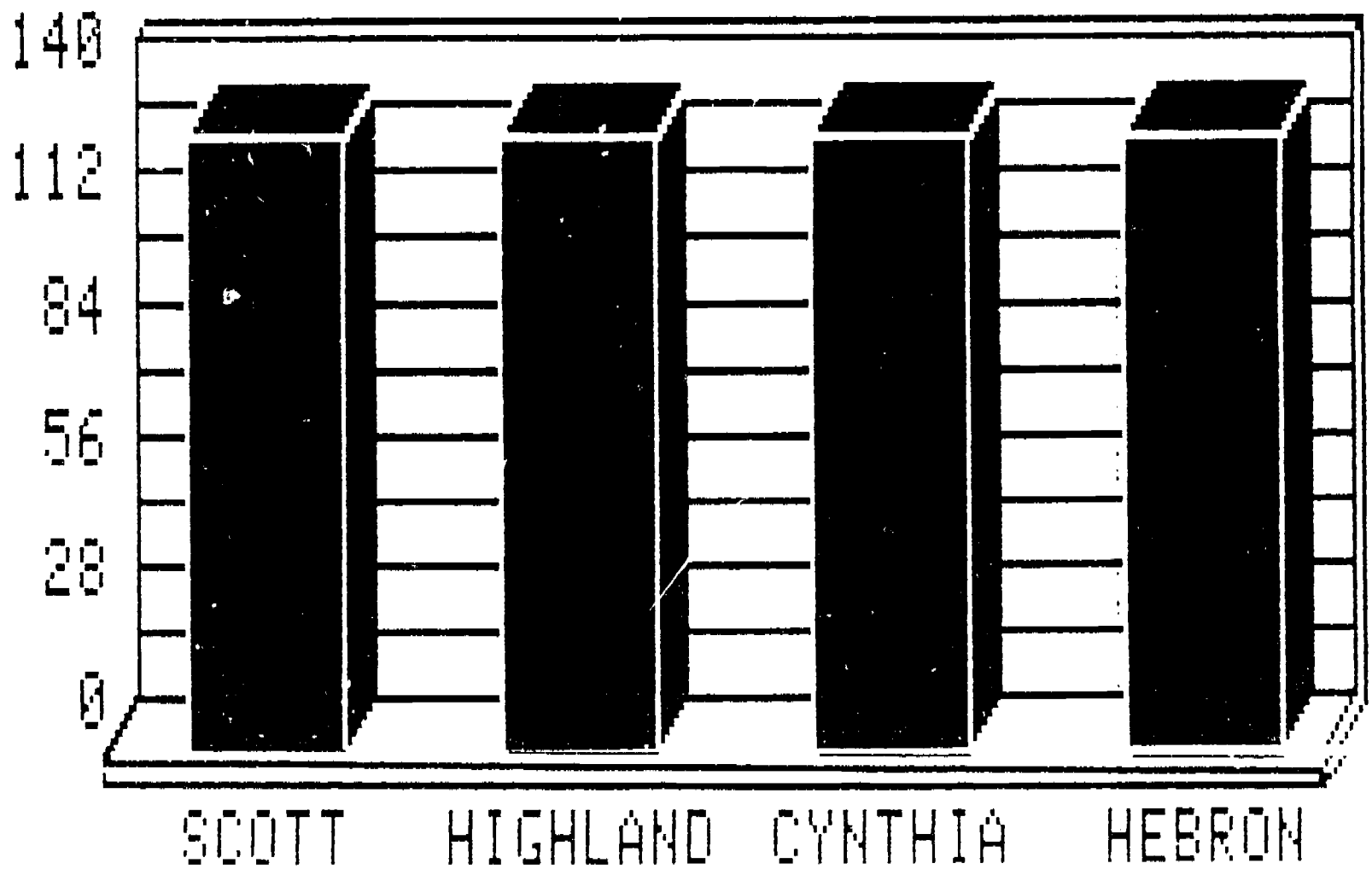
Probability Levels

	Treatment	Treatment by Location	Treatment by Grades	Treatment by Grades by Location
Pretest	.279	.954	.727	.519
Posttest	.604	.324	.215	.000
Pretest (Adjusted)	.240	.972	.763	.636
Posttest (Adjusted)	.671	.381	.159	.0001
Pre to Post Gains	.002	.562	.424	.002

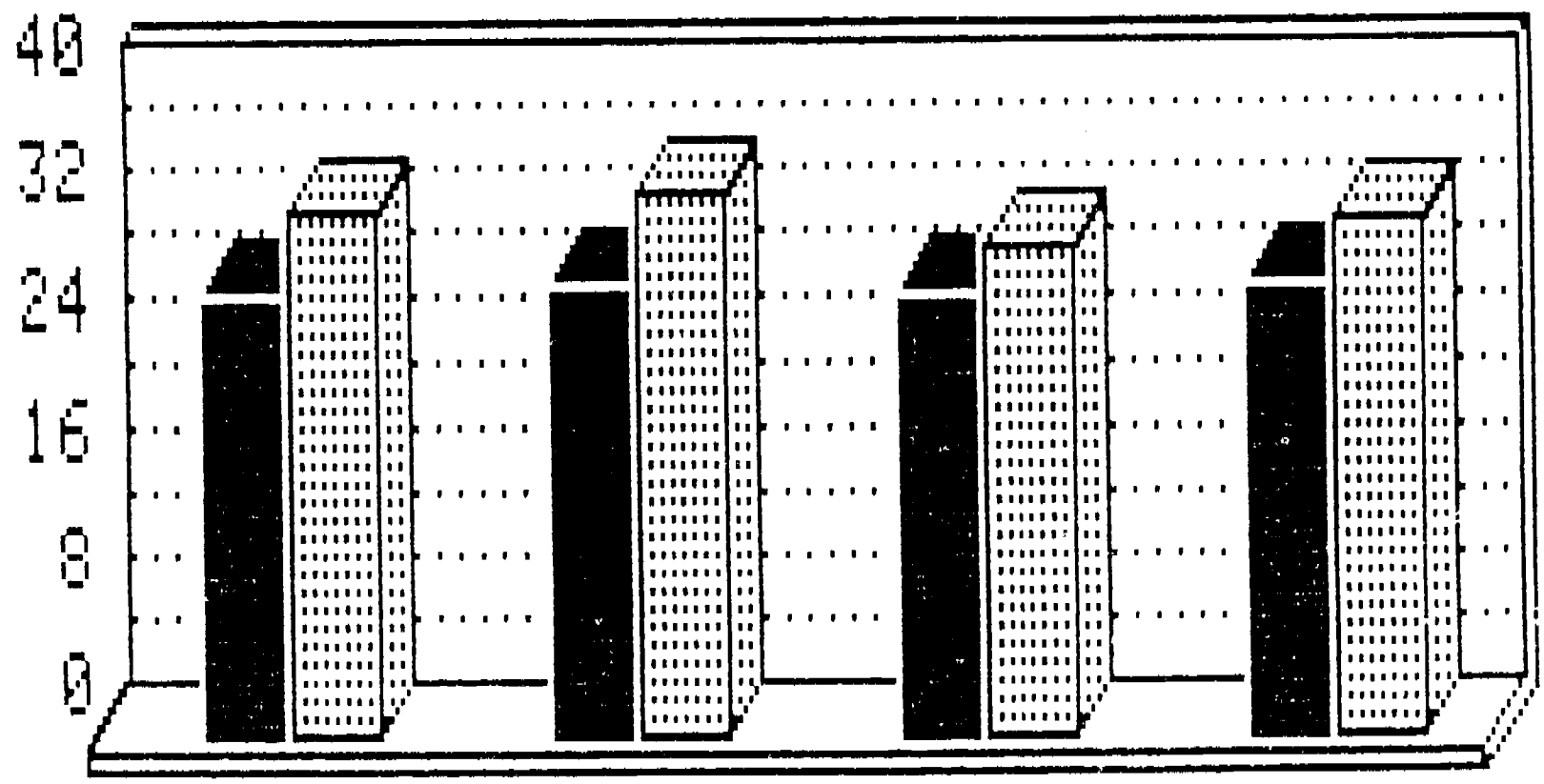
Gains from pre to post measures favored the experimental group.

Some classrooms performed better on this task than others.

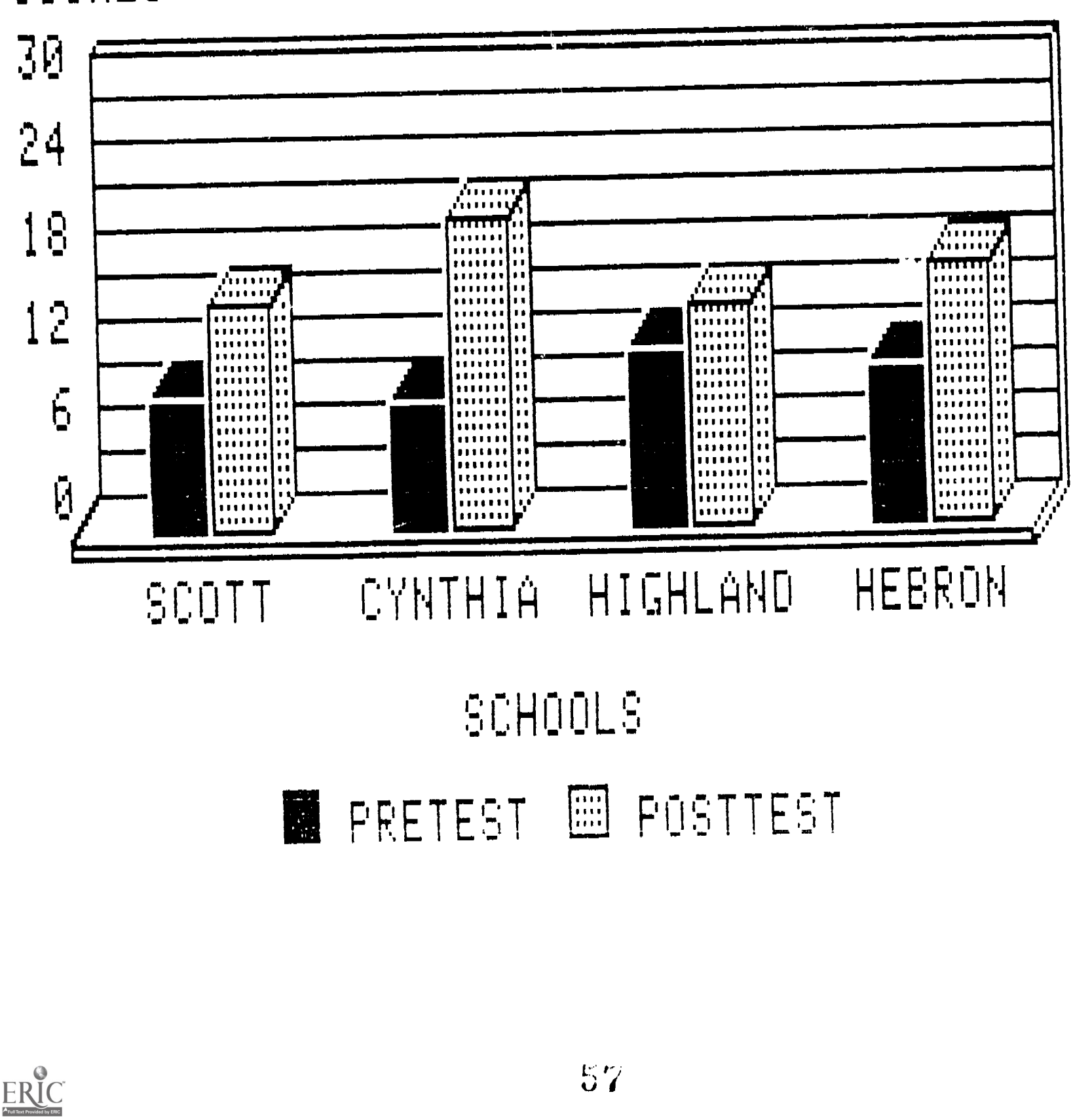
COGNITIVE SKILLS INDEX BY SCHOOLS



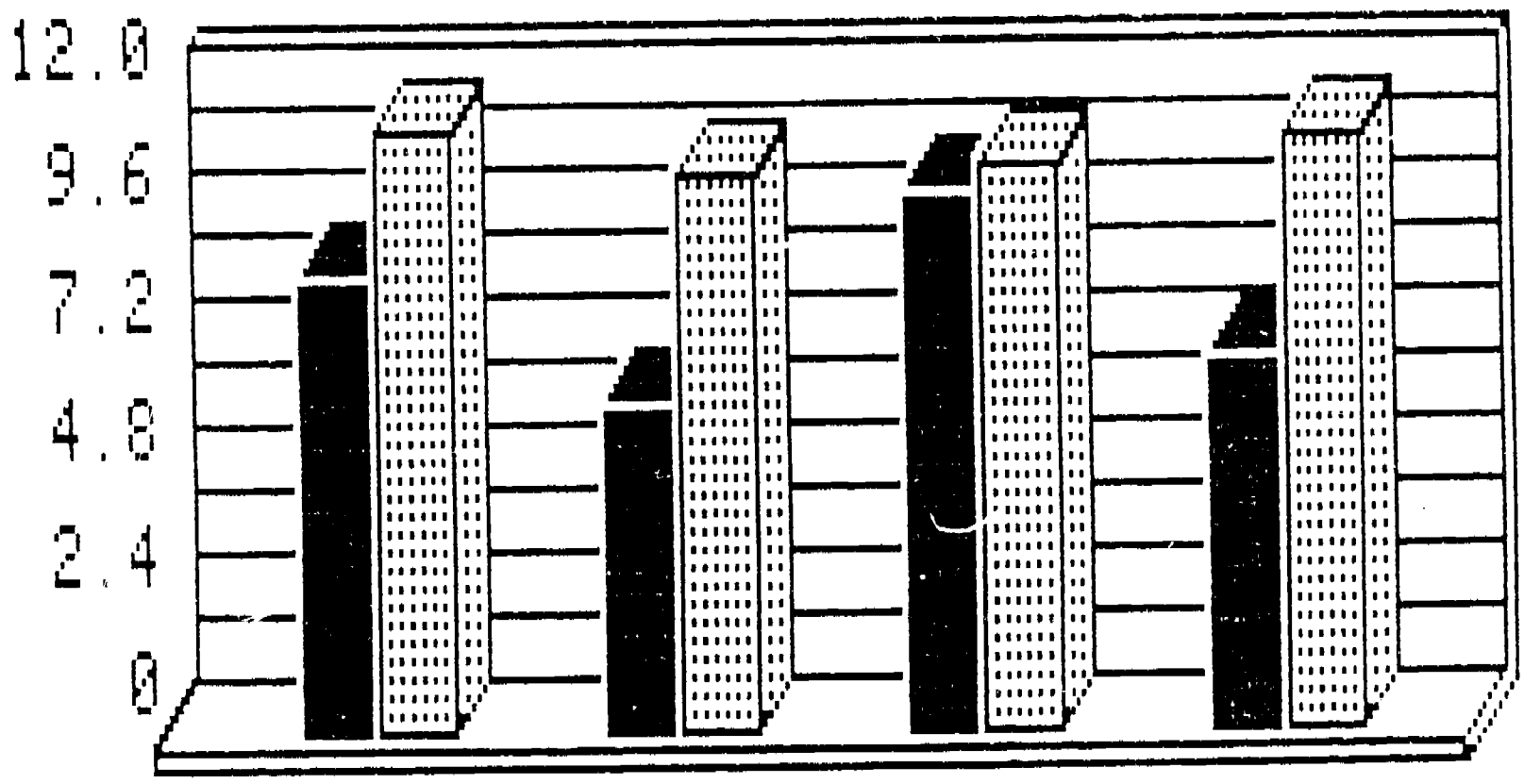
VERBAL TOTAL (DCAT) BY SAMPLE SCHOOLS



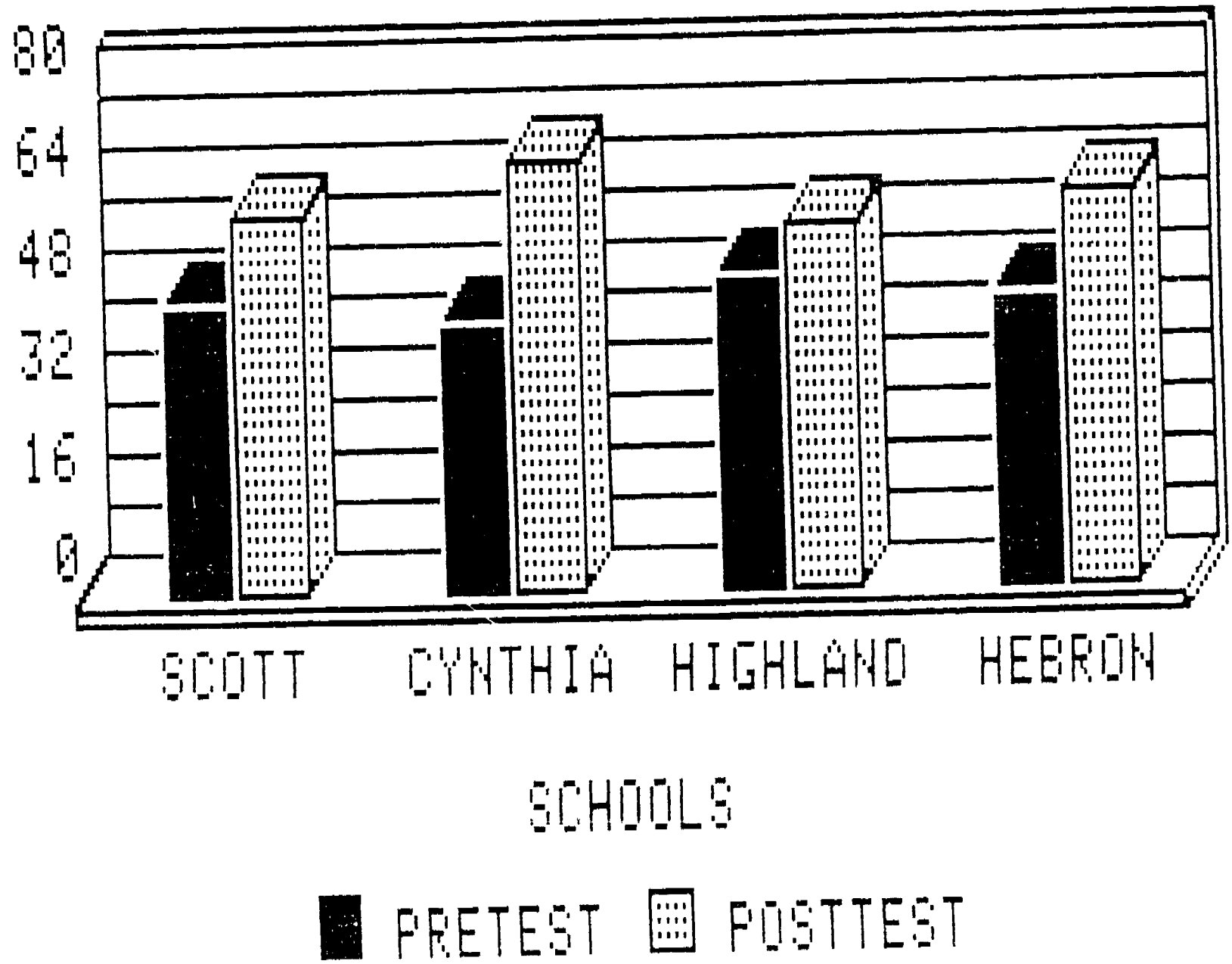
QUANTITATIVE TOTAL (DCAT) BY SCHOOLS



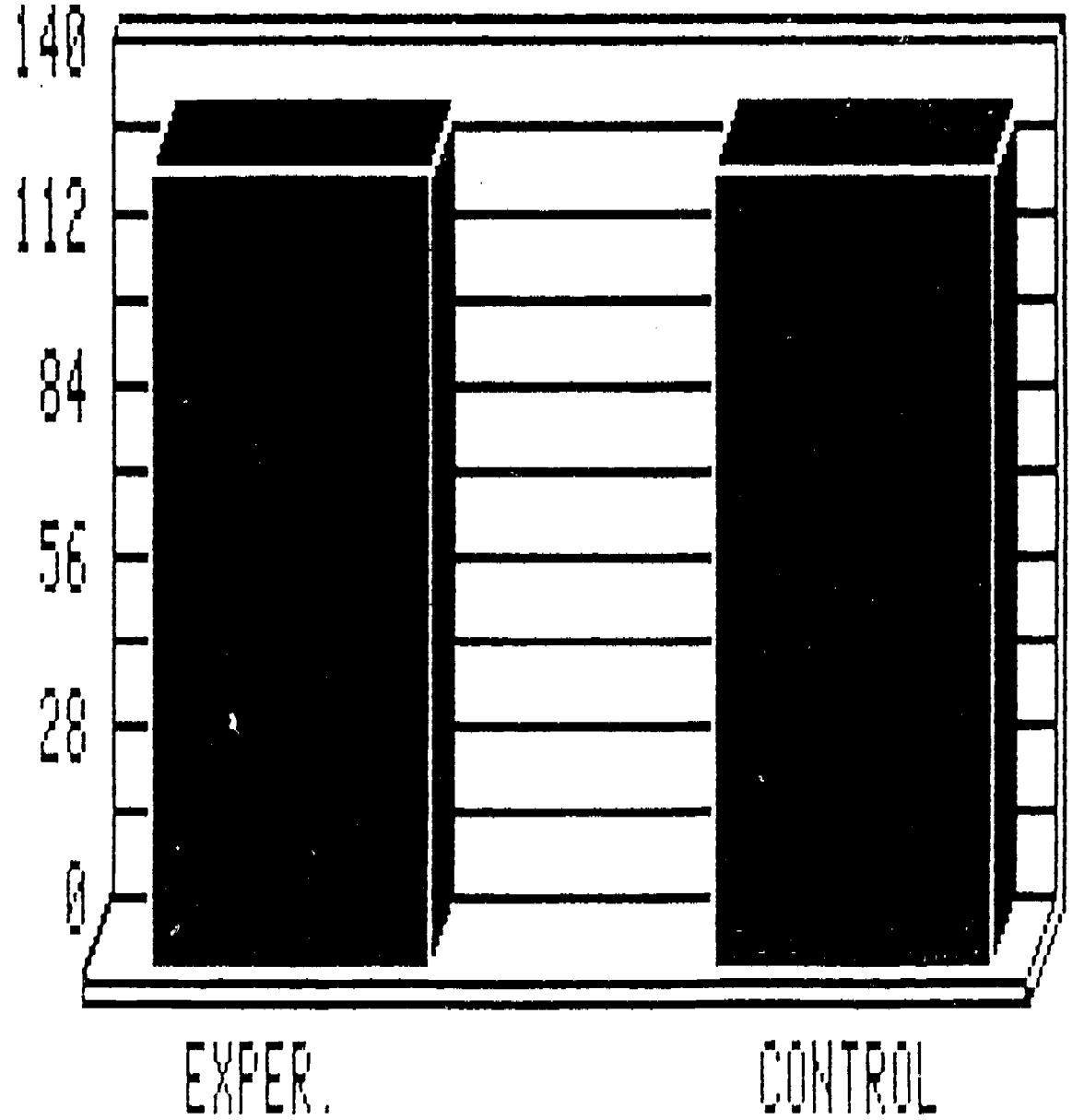
SPATIAL TOTAL (DCAT) BY SAMPLE SCHOOLS



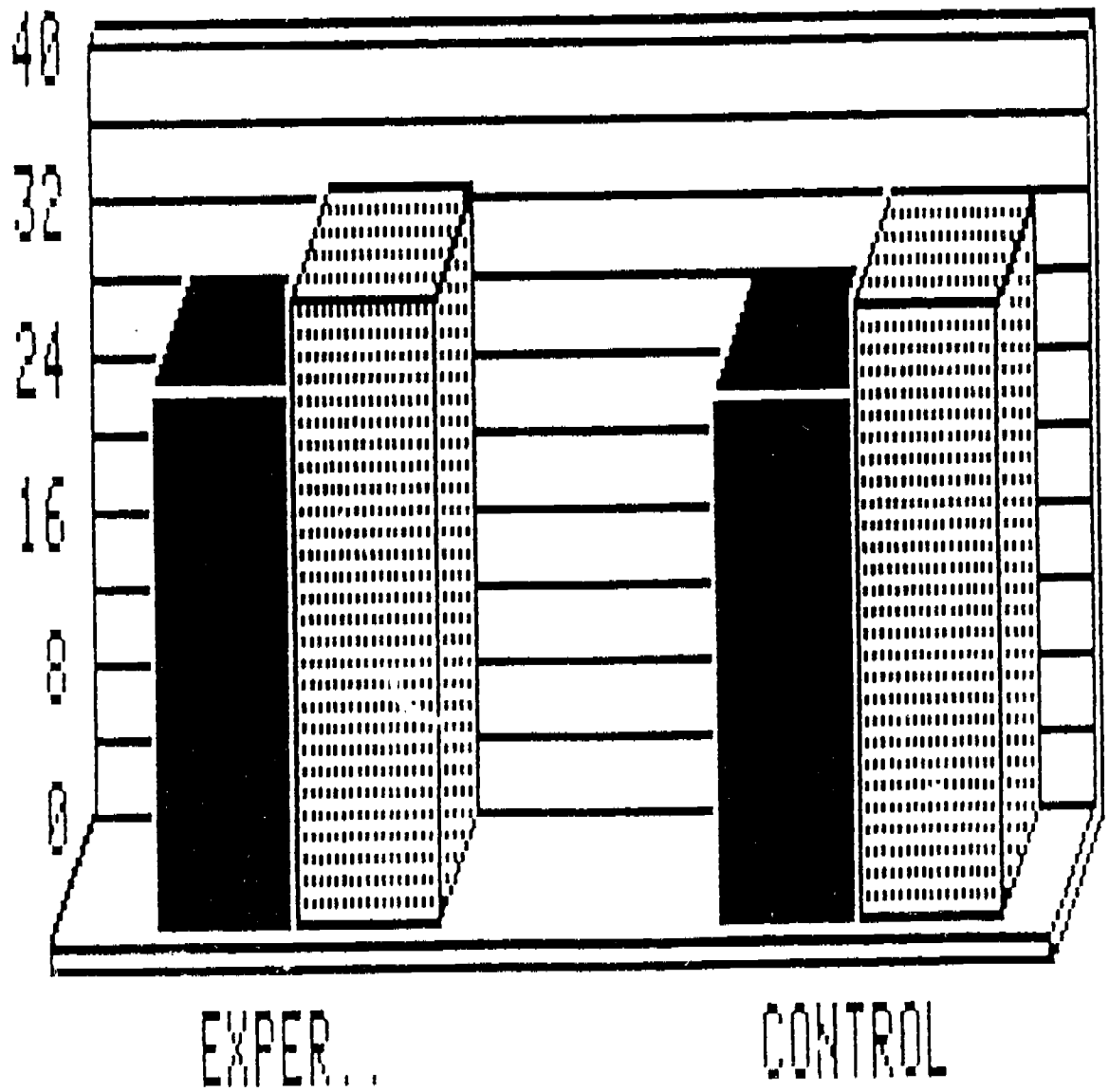
TOTAL SCORE (DCAT) BY SAMPLE SCHOOLS



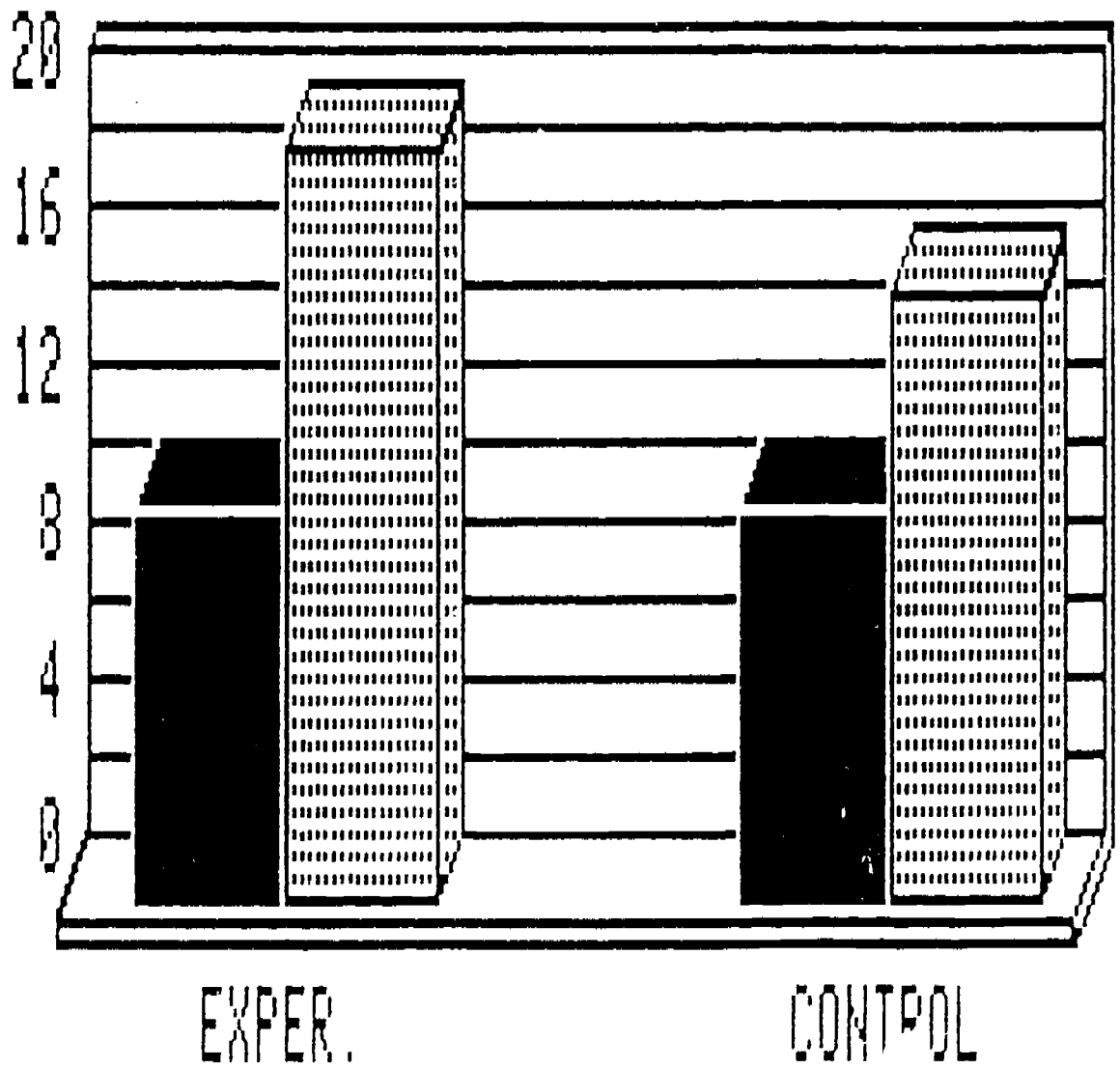
COGNITIVE SKILLS BY GROUPS



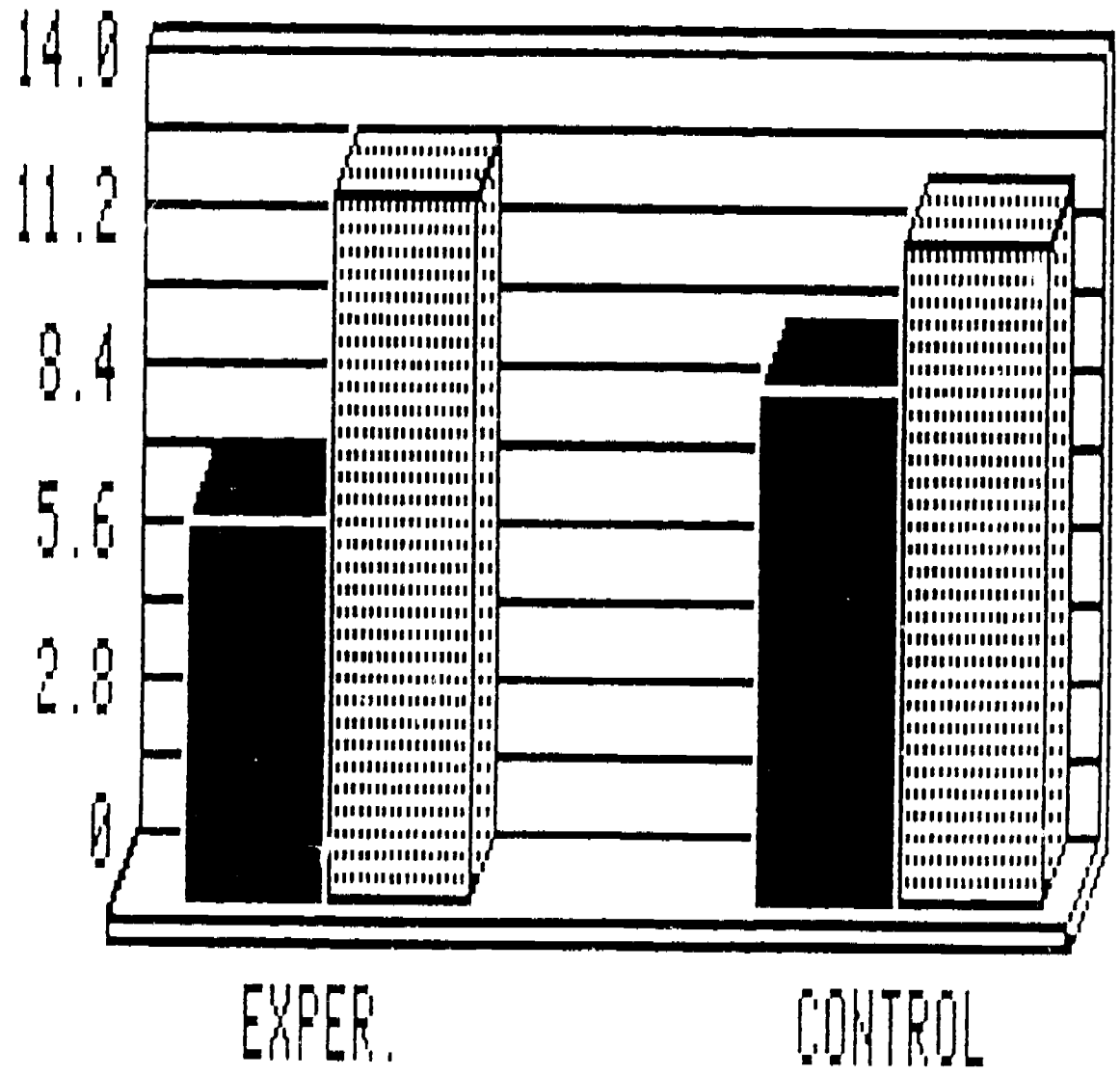
VERBAL TOTAL (DCAT) BY GROUPS



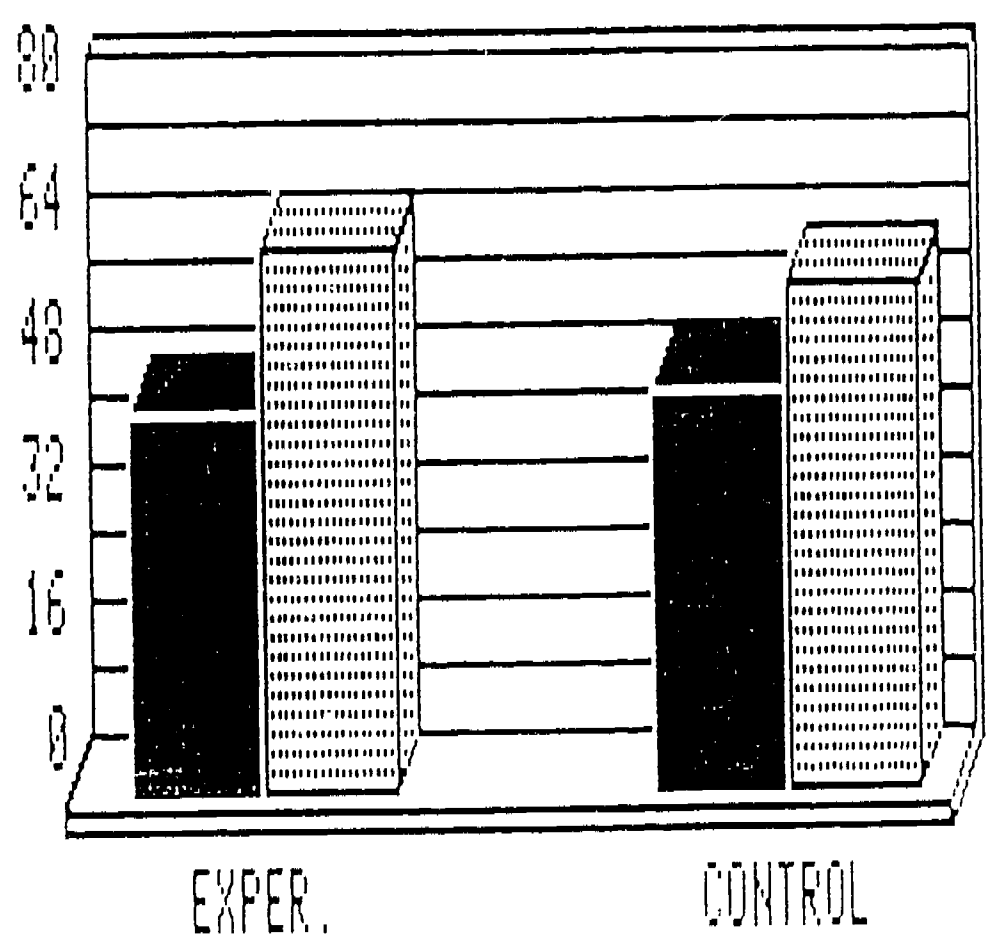
QUANTITATIVE TOTAL (DCAT) BY GROUPS



SPATIAL TOTAL (DCAT) BY GROUPS



TOTAL SCORES (DCAT) BY GROUPS



Total Scores (DCAT) for County Control (Scott)

Pretest Percentile

THE SCORES ARE:

69	68	64	61	60
59	59	59	59	58
58	58	56	56	56
56	55	55	53	53
53	52	52	52	51
51	50	50	48	48
48	47	45	45	45
44	43	43	43	43
42	42	41	40	39
39	38	37	36	35
34	34	34	33	33
33	33	33	32	32
32	31	29	27	23
22				

SCORE	FREQ.	CUM.F.	PERCENT	CUM. %
69	1	66	1.52	100.00
68	1	65	1.52	98.48
64	1	64	1.52	96.97
61	1	63	1.52	95.45
60	1	62	1.52	93.94
59	4	61	6.06	92.42
58	3	57	4.55	86.36
56	4	54	6.06	81.82
55	2	50	3.03	75.76
53	3	48	4.55	72.73
52	3	45	4.55	68.18
51	2	42	3.03	63.64
50	2	40	3.03	60.61
48	3	38	4.55	57.58
47	1	35	1.52	53.03
45	3	34	4.55	51.52
44	1	31	1.52	46.97
43	4	30	6.06	45.45
42	2	26	3.03	39.39
41	1	24	1.52	36.36
40	1	23	1.52	34.85
39	2	22	3.03	33.33
38	1	20	1.52	30.30
37	1	19	1.52	28.79
36	1	18	1.52	27.27
35	1	17	1.52	25.76
34	3	16	4.55	24.24
33	5	13	7.58	19.70
32	3	8	4.55	12.12
31	1	5	1.52	7.58
29	1	4	1.52	6.06
27	1	3	1.52	4.55
23	1	2	1.52	3.03
22	1	1	1.52	1.52

Post-test Percentile

THE SCORES ARE:

77	76	74	73	73
73	72	71	70	70
69	69	67	67	67
66	65	65	65	65
65	64	64	63	63
63	63	62	62	62
62	62	62	61	61
61	61	60	60	60
60	60	60	59	58
58	58	57	57	56
56	55	54	53	52
52	52	51	51	50
49	49	49	47	46
46	46	45	45	44
43				

SCORE	FREQ.	CUM.F.	PERCENT	CUM. %
77	1	71	1.41	100.00
76	1	70	1.41	98.59
74	1	69	1.41	97.18
73	3	68	4.23	95.77
72	1	65	1.41	91.55
71	1	64	1.41	90.14
70	2	63	2.82	88.73
69	2	61	2.82	85.92
67	3	59	4.23	83.10
66	1	56	1.41	78.87
65	5	55	7.04	77.46
64	2	50	2.82	70.42
63	4	48	5.63	67.61
62	6	44	8.45	61.97
61	4	38	5.63	53.52
60	6	34	8.45	47.89
59	1	28	1.41	39.44
58	3	27	4.23	38.03
57	2	24	2.82	33.80
56	2	22	2.82	30.99
55	1	20	1.41	28.17
54	1	19	1.41	26.76
53	1	18	1.41	25.35
52	3	17	4.23	23.94
51	2	14	2.82	19.72
50	1	12	1.41	16.90
49	3	11	4.23	15.49
47	1	8	1.41	11.27
46	3	7	4.23	9.86
45	2	4	2.82	5.63
44	1	2	1.41	2.82
43	1	1	1.41	1.41

Total Scores (DCAT) for City Control (Highland)

Pretest Percentile

THE SCORES ARE:

68	66	65	60	60
59	58	57	56	56
56	55	55	54	54
53	52	52	51	51
51	51	51	50	50
49	48	48	47	47
42	42	41	40	39
36	34	33	32	29
24				

SCORE	FREQ.	CUM.F.	PERCENT	CUM. %
68	1	41	2.44	100.00
66	1	40	2.44	97.56
65	1	39	2.44	95.12
60	2	38	4.88	92.68
59	1	36	2.44	87.80
58	1	35	2.44	85.37
57	1	34	2.44	82.93
56	3	33	7.32	80.49
55	2	30	4.88	73.17
54	2	28	4.88	68.29
53	1	26	2.44	63.41
52	2	25	4.88	60.98
51	5	23	12.20	56.10
50	2	18	4.88	43.90
49	1	16	2.44	39.02
48	2	15	4.88	36.59
47	2	13	4.88	31.71
42	2	11	4.88	26.83
41	1	9	2.44	21.95
40	1	8	2.44	19.51
39	1	7	2.44	17.07
36	1	6	2.44	14.63
34	1	5	2.44	12.20
33	1	4	2.44	9.76
32	1	3	2.44	7.32
29	1	2	2.44	4.88
24	1	1	2.44	2.44

Post-test Percentile

THE SCORES ARE:

75	72	72	67	66
66	65	64	63	62
62	62	62	61	61
61	60	60	59	59
59	59	57	56	55
55	55	55	54	54
54	53	53	53	53
52	52	52	52	51
49	49	47	44	43
42				

SCORE	FREQ.	CUM.F.	PERCENT	CUM. %
75	1	46	2.17	100.00
72	2	45	4.35	97.83
67	1	43	2.17	93.48
66	2	42	4.35	91.30
65	1	40	2.17	86.96
64	1	39	2.17	84.78
63	1	38	2.17	82.61
62	4	37	8.70	80.43
61	3	33	6.52	71.74
60	2	30	4.35	65.22
59	4	28	8.70	60.87
57	1	24	2.17	52.17
56	1	23	2.17	50.00
55	4	22	8.70	47.83
54	3	18	6.52	39.13
53	4	15	8.70	32.61
52	4	11	8.70	23.91
51	1	7	2.17	15.22
49	2	6	4.35	13.04
47	1	4	2.17	8.70
44	1	3	2.17	6.52
43	1	2	2.17	4.35
42	1	1	2.17	2.17

Total Scores (DCAT) for County Experimental (Cynthia Heights)

Pretest Percentile

THE SCORES ARE:

67	65	64	60	60
59	58	57	55	55
55	54	54	54	54
52	50	50	50	49
49	49	49	49	49
48	48	48	47	47
46	44	44	43	43
42	41	41	40	40
38	36	35	34	34
34	32	32	32	31
31	30	25	24	24
22	17	13	12	

SCORE	FREQ.	CUM.F.	PERCENT	CUM. %
67	1	59	1.69	100.00
65	1	58	1.69	98.31
64	1	57	1.69	96.61
60	2	56	3.39	94.92
59	1	54	1.69	91.53
58	1	53	1.69	89.83
57	1	52	1.69	88.14
55	3	51	5.08	86.44
54	4	48	6.78	81.36
52	1	44	1.69	74.58
50	3	43	5.08	72.88
49	6	40	10.17	67.80
48	3	34	5.08	57.63
47	2	31	3.39	52.54
46	1	29	1.69	49.15
44	2	28	3.39	47.46
43	2	26	3.39	44.07
42	1	24	1.69	40.68
41	2	23	3.39	38.98
40	2	21	3.39	35.59
38	1	19	1.69	32.20
36	1	18	1.69	30.51
35	1	17	1.69	28.81
34	3	16	5.08	27.12
32	3	13	5.08	22.03
31	2	10	3.39	16.95
30	1	8	1.69	13.56
25	1	7	1.69	11.86
24	2	6	3.39	10.17
22	1	4	1.69	6.78
17	1	3	1.69	5.08
13	1	2	1.69	3.39
12	1	1	1.69	1.69

Post-test Percentile

THE SCORES ARE:

80	76	76	75	75
75	74	74	74	74
73	73	73	73	73
73	73	73	73	72
72	71	69	69	69
69	69	69	69	68
68	68	68	68	67
67	66	66	66	65
65	65	64	64	64
63	63	62	61	61
61	60	59	58	56
53	51	49		

SCORE	FREQ.	CUM.F.	PERCENT	CUM. %
80	1	58	1.72	100.00
76	2	57	3.45	98.28
75	3	55	5.17	94.83
74	4	52	6.90	89.66
73	9	48	15.52	82.76
72	2	39	3.45	67.24
71	1	37	1.72	63.79
69	7	36	12.07	62.07
68	5	29	8.62	50.00
67	2	24	3.45	41.38
66	3	22	5.17	37.93
65	3	19	5.17	32.76
64	3	16	5.17	27.59
63	2	13	3.45	22.41
62	1	11	1.72	18.97
61	3	10	5.17	17.24
60	1	7	1.72	12.07
59	1	6	1.72	10.34
58	1	5	1.72	8.62
56	1	4	1.72	6.90
53	1	3	1.72	5.17
51	1	2	1.72	3.45
49	1	1	1.72	1.72

Total Scores (DCAT) for City Experimental (Hebron)

Pretest Percentile

THE SCORES ARE:

76	69	65	65	64
60	58	58	56	55
55	54	53	53	52
52	51	51	51	51
50	50	49	49	49
49	49	49	49	49
48	48	47	47	47
46	45	45	44	44
44	44	43	43	42
41	41	41	40	38
38	36	34	32	32
31	30	30	30	28
27	26	25	24	11

SCORE	FREQ.	CUM.F.	PERCENT	CUM. %
76	1	65	1.54	100.00
69	1	64	1.54	98.46
65	2	63	3.08	96.92
64	1	61	1.54	93.85
60	1	60	1.54	92.31
58	2	59	3.08	90.77
56	1	57	1.54	87.69
55	2	56	3.08	86.15
54	1	54	1.54	83.08
53	2	53	3.08	81.54
52	2	51	3.08	78.46
51	4	49	6.15	75.38
50	2	45	3.08	69.23
49	8	43	12.31	66.15
48	2	35	3.08	53.85
47	3	33	4.62	50.77
46	1	30	1.54	46.15
45	2	29	3.08	44.62
44	4	27	6.15	41.54
43	2	23	3.08	35.38
42	1	21	1.54	32.31
41	3	20	4.62	30.77
40	1	17	1.54	26.15
38	2	16	3.08	24.62
36	1	14	1.54	21.54
34	1	13	1.54	20.00
32	2	12	3.08	18.46
31	1	10	1.54	15.38
30	3	9	4.62	13.85
28	1	6	1.54	9.23
27	1	5	1.54	7.69
26	1	4	1.54	6.15
25	1	3	1.54	4.62
24	1	2	1.54	3.08
11	1	1	1.54	1.54

Post-test Percentile

THE SCORES ARE:

75	75	75	74	74
74	73	73	71	71
71	70	70	70	70
70	69	69	68	68
68	68	68	67	67
67	66	66	66	66
66	66	66	65	65
65	65	65	64	64
64	63	63	63	63
63	62	62	62	62
61	61	61	60	60
60	59	59	59	58
58	58	58	57	57
57	57	57	57	57
57	57	56	56	54
53	53	53	52	51
50	50	49	49	48
48	46	45		

SCORE	FREQ.	CUM.F.	PERCENT	CUM. %
75	3	88	3.41	100.00
74	3	85	3.41	96.59
73	2	82	2.27	93.18
71	3	80	3.41	90.91
70	5	77	5.68	87.50
69	2	72	2.27	81.82
68	5	70	5.68	79.55
67	3	65	3.41	73.86
66	7	62	7.95	70.45
65	5	55	5.68	62.50
64	3	50	3.41	56.82
63	5	47	5.68	53.41
62	4	42	4.55	47.73
61	3	38	3.41	43.18
60	3	35	3.41	39.77
59	3	32	3.41	36.36
58	4	29	4.55	32.95
57	9	25	10.23	28.41
56	2	16	2.27	18.18
54	1	14	1.14	15.91
53	3	13	3.41	14.77
52	1	10	1.14	11.36
51	1	9	1.14	10.23
50	2	8	2.27	9.09
49	2	6	2.27	6.82
48	2	4	2.27	4.55
46	1	2	1.14	2.27
45	1	1	1.14	1.14

SECOND GRADE

272

Sept 10, 1967

Why I was disappointed

It was Christmas Eve and I was watching my Favret T V show And write at the momite my mom said, "Go to bed you have school in the morning." "But tomorow is Christmas we dont have school!" I said. She said go to bed anyway! So I went to bed

65

70

Ted Highland 3
2
2-3

Once upon a time there was a girl named Tracy. Then her sister came in and her name was Stacy. She told her that there was a rock group in town. They were so excited. That they begged and begged their Mom and Dad to go. But it was no use. They couldn't do it. So they went to there friends house. And they were going but still Stacy and Stacy couldn't go. So that night they asked if they could spend the night at there house. And they said yes. So that night they snuck out and they were so excited and when

Fourth Grade 1.7
1.3
1.3

September [illegible]

Just yesterday Matt, Jace and my friend Philip got in a dirt ball fight. I was riding my bike when I saw them fighting I told Matt and Jace to stop throwing dirt balls. But they didnt listen. So I got off my bike and went a little closer and told them again to stop thring dirt balls. But Matt and Jace just threw some at me. So I went up close to my friend and said dont throw any untile they threw some at us. And Philip said I havent thrown any I've just been doging then I went home and got my [illegible]. But when I was walking back they threw some and hit me. [illegible] [illegible] [illegible], so I started [illegible] and so did Philip. As soon as I hit each one of them [illegible] we left.

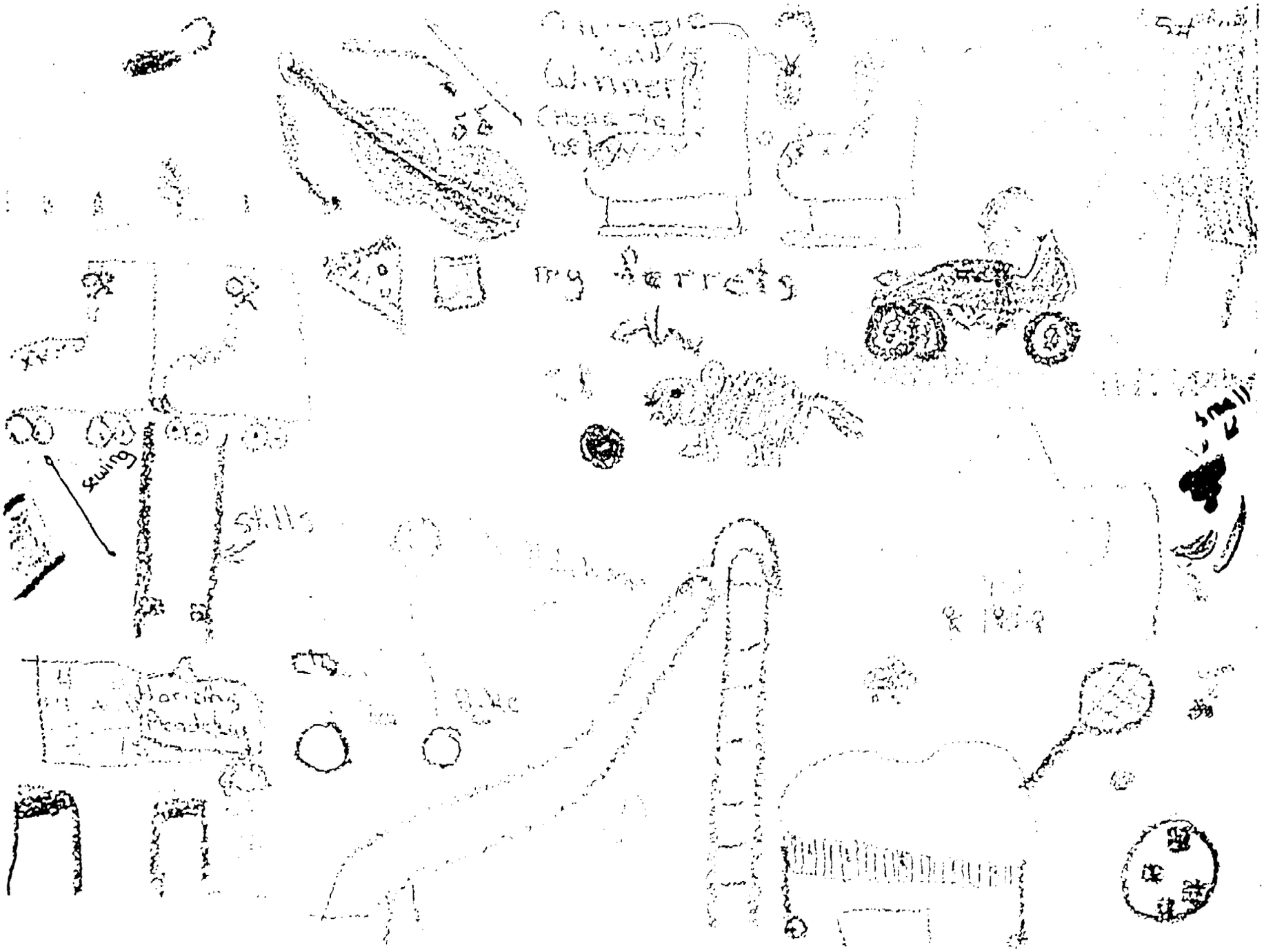
3
2.7
2

I was going to go to the store with my mom and spend my money one day.

First we went by our church so that mom could do some things to the alter. But when we got there, our minister had already done what she was going to do. We saw him with three tennis balls. My mom asked what he was doing. He said he was juggling, and he started then finished quickly. He asked me if I could juggle. I said I could sort-of do two in one hand. He then said for me to go ahead and do it with the tennis balls. I wasn't very good. He said I could keep the tennis balls. That made me happy.

Then we went to the store. I saw a toy in a store that I like called The Ghostbusters. It was Ghost Head Ghost. I had to get this, so I told my mom I'll pay for it. She asked me if I really wanted it. I said yes so she got it and put it in the cart we had at Target. She said that now we had to get my sister something. I didn't care what I wanted to do at that time.

When I finally got home I practiced juggling, and I played with my new toy. 74



GRADE 5